

RANCANG BANGUN SISTEM PAKAR DIAGNOSIS PENYAKIT GIGI BERBASIS MOBILE MENGGUNAKAN PENDEKATAN CERTAINTY FACTOR DAN FORWARD CHAINING

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INTISARI

Latar Belakang: Kesehatan gigi sering terabaikan, padahal sangat penting dalam kehidupan sehari-hari. Rendahnya kesadaran, keterbatasan tenaga medis, dan mahalannya biaya perawatan menjadi kendala utama. Oleh karena itu, diperlukan solusi teknologi yang mendukung deteksi dini secara mandiri, seperti sistem pakar *mobile* yang mampu mendiagnosis awal penyakit gigi berdasarkan gejala pengguna.

Tujuan: Tujuan dari penelitian ini adalah merancang dan mengimplementasikan sistem pakar berbasis *mobile* yang memungkinkan pengguna untuk melakukan identifikasi penyakit gigi secara mandiri.

Metode Penelitian: Penelitian dilakukan melalui beberapa tahap, dimulai dari perumusan masalah dan pengumpulan data. Pengembangan sistem dilakukan menggunakan pendekatan *Waterfall*. Bahasa pemrograman yang digunakan dalam pengembangan sistem ini adalah kotlin.

Hasil: Sistem mampu mengidentifikasi penyakit gigi berdasarkan input gejala pengguna. Sistem dapat membedakan penyakit dengan gejala serupa dan memilih diagnosis dengan tingkat kepastian tertinggi. Berdasarkan validasi dengan pakar, akurasi sistem mencapai 70%. Selain itu, hasil pengujian *Black Box* membuktikan bahwa seluruh fitur utama aplikasi berjalan sesuai fungsi yang diharapkan.

Kesimpulan: Aplikasi sistem pakar diagnosis penyakit gigi berbasis *mobile* berhasil dikembangkan menggunakan metode *Certainty Factor* dan *Forward Chaining*, serta mampu membantu pengguna mengenali gejala dan memperoleh diagnosis awal secara mandiri dengan tingkat akurasi yang baik.

Kata-kunci: Sistem Pakar, *Forward Chaining*, *Certainty Factor*, *Waterfall*, *Mobile*

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DESIGN OF A MOBILE-BASED DENTAL DISEASE DIAGNOSIS EXPERT SYSTEM USING CERTAINTY FACTOR AND FORWARD CHAINING APPROACHES

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ABSTRACT

Background: Dental health is often neglected, even though it is very important in everyday life. Low awareness, limited medical personnel, and high cost of treatment are the main obstacles. Therefore, technological solutions are needed that support early detection independently, such as a mobile expert system that is able to diagnose early dental diseases based on user symptoms.

Objective: The purpose of this research is to design and implement a mobile-based expert system that allows users to identify dental diseases independently.

Method: The research was conducted through several stages, starting from problem formulation and data collection. System development is carried out using the Waterfall approach. The programming language used in the development of this system is kotlin.

Result: The system is able to identify dental diseases based on user symptom input. The system can distinguish diseases with similar symptoms and select the diagnosis with the highest level of certainty. Based on validation with experts, the accuracy of the system reaches 70%. In addition, the results of Black Box testing prove that all the main features of the application run according to the expected function.

Conclusion: The mobile-based dental disease diagnosis expert system application was successfully developed using the Certainty Factor and Forward Chaining methods, and was able to help users recognize symptoms and obtain an initial diagnosis independently with a good level of accuracy.

Keywords: Expert System, Forward Chaining, Certainty Factor, Waterfall, Mobile

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